

## Problem Sets

### Types of Ratios

Directions: Discuss with teammates what is the same or different about these ratio statements.

1. In taste tests, people who preferred Choco Cola outnumbered those who preferred Nilla Cola by a ratio of 3 to 2.
2. The ratio of boys to girls in our class is 14 boys to 17 girls.
3. For every five tents there are 15 campers.
4. The ratio of girls to students in our class is 17 girls to 31 students.
5. The ratio of puppies to dogs in our neighborhood is  $\frac{1}{5}$ .
6. The sign in the hotel lobby says: 1 dollar Canadian : 0.87 dollars US.
7. A paint mixture calls for 4 parts red paint to 3 parts yellow paint.

### Compare Ratios

Directions: Answer the questions below and show your thinking. Do not use the method called cross products.

1. Terry can run 4 laps in 9 minutes. Susan can run 2 laps in 5 minutes. Who is the faster runner?
2. Some of the hens in Farmer Brown's chicken farm lay brown eggs and the others lay white eggs. Farmer Brown noticed that in the large hen house he collected about 4 brown eggs for every 10 white eggs. In the smaller hen house the ratio of brown to white eggs was 1 to 3. In which hen house do the hens lay more brown eggs, or is it the same?
3. Talk too Much phone company charges \$.70 for 15 minutes. Call Me phone company charges \$2.00 for 40 minutes. Which company is offering the cheaper rate, or are they the same?
4. Which rectangle is "fatter": a 3 x 5 rectangle or a 5 x 7 rectangle, or are they equally "fat" (similar)?

### Using Ratio Tables

Directions: Build a ratio table for each situation described below and use it to answer the question.

Tasks are adapted from Laman (1999).

1. A person who weighs 160 pounds on earth will weigh 416 pounds on the planet Jupiter. How much will a person weigh on Jupiter who weighs 120 pounds on Earth?
2. At the local college, 5 out of every 8 seniors live in apartments. How many of the 30 senior math majors are likely to live in an apartment?
3. The tax on a purchase of \$20 is \$1.12. How much tax will there be on a purchase of \$45.50?
4. How many pounds of bird seed can be purchase for \$18, if you can buy 28 pounds for \$35?
5. When in Canada, you can exchange \$4.50 in US dollars for \$6 Canadian. How much is \$17.50 Canadian in US dollars?

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### Within and Between Ratios

Directions: Each set represents two different scenarios. Determine which ratio, within or between, would be best to solve each of the problems within the set.

#### Set 1

1. Tammy bought 3 widgets for \$2.40. At the same price, how much would 10 widgets cost?
2. Tammy bought 4 widgets for \$3.75. At the same price, how much would a dozen widgets cost?

#### Set 2

1. At the Office Super Store, you can buy plain #2 pencils, four for 59 cents. The store also sells the same pencils in a larger box of 5 dozen pencils for \$7.79. How much do you save by buying the large box?
2. The price of a box of 2 dozen candy bars is \$4.80. Bridget wants to buy 5 candy bars. What will she have to pay?

### Making Sense

Directions: Read each problem carefully and discuss with your table group. Do they make sense? What distinguishes those that make sense from those that do not?

1. If one girl can walk to school in 10 minutes, two girls can walk to school in 20 minutes.
2. If one box of cereal costs \$2.80, two boxes of cereal cost \$5.60.
3. If one boy makes one model car in 2 hours, then he can make three models in 6 hours.
4. If Huck can paint the fence in 2 days, then Huck, Tom, and a third boy can paint the fence in 6 days.
5. If one girl has 2 cats, then four girls have 8 cats.